

# WHEEL RIM COVER ENGAGEMENT DEVICE

## BACKGROUND OF THE INVENTION

### 5 1. Field of the Invention

This invention relates to a wheel rim cover engagement device, particularly to one for assembling a wheel rim cover on the wheel rim of a large-size car. The wheel rim cover engagement device is provided with an engage ring having a plurality of resilient engage members. The  
1 0 engage ring is engaged in the recess of the flange of the wheel rim of a car, and a steel ring is forcefully fitted in the annular accommodating groove of the engage ring to force the resilient engage members of the engage ring to push against the inner wall of the flange of the wheel rim. A wheel rim cover is assembled on the engage ring, which is engaged on  
1 5 the inner edge of the wheel rim, by bolts or by the hooking portions of the fastening members of the wheel rim cover, able to solve the problem that a wheel rim cover cannot directly be installed on the wheel rim of a large-size car because the radian of the flange of the wheel rim is too large and the inner circumferential edge of the wheel rim is too straight.

### 2 0 2. Description of the Prior Art

Generally, a driver not only cares the maintenance of his car but also pays much attention to enhancement of the aesthetic appearance of his car. For the present, most common cars have the wheel rims

covered with wheel rim covers so as to achieve effective embellishment. A conventional wheel rim cover has its circumferential edge formed with a plurality of fixing bases respectively for receiving engage members thereon. Each engage member has a hooking portion for  
5 firmly clasping the flange of the wheel rim when the wheel rim cover is installed on the wheel rim. Another kind of conventional wheel rim cover is provided with plural engage members protruding upward on the circumferential edge and each engage member is formed with a recess in the inner side for fitting a steel ring therein to let the engage members  
10 have a proper resilience and an outward push force. Thus, when a wheel rim cover is installed on a wheel rim, the resilient engage members can have their combining portions urged firmly in the recessed and arc-shaped inner edge of the wheel rim, thus stably assembling the wheel rim cover on the wheel rim.

15           Nevertheless, the wheel rim cover engagement devices mentioned above are only applicable to the wheel rim of common cars. For the present, it is still hard to assemble a wheel rim cover on the wheel rim of a large-size car, such as a bus, a freight car, a truck and the like. Because the flange of the wheel rim of a large-size car is formed  
20 with a comparatively large and long radian; therefore, a wheel rim cover with engage members is unable to have the hooking portions of its engage members clasp the flange of the wheel rim of a large-size car. Besides, the inner circumferential edge of the wheel rim of a large-size

car is smooth and somewhat straight without any arcuate recess; therefore a wheel rim cover with protruding-up engage members is unable to have the projecting combining portions of its engage members engaged firmly with the wheel rim.

5           To solve such a problem, an engagement device for assembling a wheel rim cover on the wheel rim of a large-size car was designed. The engagement device, as shown in Figs. 10 and 11, is provided with a steel ring 71 having plural locking blocks 72 to be fixed in the recess of the flange 31 of a wheel rim. The steel ring 71 has its opposite ends  
10           respectively formed with a left and a right threaded portion 711, 712 respectively screwed with the left and the right threaded hole 731, 732 of an adjusting member 73. The adjusting member 73 can be turned around by a hand tool inserting in its insert hole 733 to expand outward the steel ring 71 and simultaneously fix the locking block 72 in the  
15           recess of the flange 31 of the wheel rim 3.

Each locking block 72 is formed with an arc-shaped portion 721 to be fitted in the recess of the flange 31 of the wheel rim 3 and a round hole 722 in the center. Thus, a screw 74 can be inserted through the insert hole 75 of a wheel rim cover 7 and screwed in the round hole  
20           722 of the locking block 72 to fix the wheel rim cover 7 on the wheel rim 3.

However, the conventional wheel rim cover engagement device described above has the following drawbacks.

1. In assembling, the locking blocks must have their round holes respectively aligned to the insert holes of the wheel rim cover so as to enable a bolt to be accurately screwed therethrough, taking too much time in assembling.

5           2. The adjusting member and the threaded portions of the opposite ends of the steel ring are together turned around to make the steel ring expand outward, therefore the adjusting member must be column-shaped and bored with an insert hole so as to allow the adjusting member to be rotated smoothly in the recess of the flange of the wheel  
10 rim, and besides a special tool has to be employed to turn around the adjusting member, inconvenient in assembling.

          3. The wheel rim cover has to be bored with insert holes for screws to pass therethrough and be screwed with the locking blocks, thus spoiling the integral aesthetic appearance of the wheel rim cover.

15

## SUMMARY OF THE INVENTION

          The objective of the invention is to offer a wheel rim cover engagement device which is provided with an engage ring having a  
20 plurality of resilient engage members fitted with a steel ring. The engage ring together with the steel ring is installed in the recess of the flange of a wheel rim, so that a wheel rim cover can be secured on the engage ring by means of its fastening members, able to solve the problem that a

wheel rim cover cannot be assembled thereon because of the wheel rim flange of a large-size car having an excessive radian and the inner edge of the wheel rim being too straight, Besides, it is not necessary to adjust the position of the locking members to align with the insert holes of the wheel rim cover as the conventional wheel rim cover engagement device does, able to assemble a wheel rim cover on a wheel rim with quickness.

#### BRIEF DESCRIPTION OF DRAWINGS

10

The present invention will be better understood by referring to the accompanying drawings, wherein:

Fig. 1 is an exploded perspective view of a first embodiment of a wheel rim cover engagement device in the present invention:

Fig. 2 is a side cross-sectional view of the first embodiment of the wheel rim cover engagement device in the present invention:

Fig. 3 is a cross-sectional view of the first embodiment of the wheel rim cover engagement device in the present invention:

Fig. 4 is a cross-sectional view of a second embodiment of the wheel rim cover engagement device in an operating condition in the present invention:

Fig. 5 is a cross-sectional view of the second embodiment of

the wheel rim cover engagement device in another operating condition in the present invention:

Fig. 6 is an exploded perspective view of a third embodiment of the wheel rim cover engagement device in the present invention:

5 Fig. 7 is a cross-sectional view of the third embodiment of the wheel rim cover engagement device in an assembled condition in the present invention:

Fig. 8 is a cross-sectional view of the third embodiment of the wheel rim cover engagement device in another assembled condition in  
10 the present invention:

Fig. 9 is a cross-sectional view of a fourth embodiment of the wheel rim cover engagement device in the present invention:

Fig. 10 is an exploded perspective view of a conventional wheel rim cover engagement device: and

15 Fig. 11 is a cross-sectional view of the conventional wheel rim cover engagement device.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

20 A first preferred embodiment of a wheel rim cover engagement device in the present invention, as shown in Fig. 1, includes an engage ring 1 and a steel ring 2 combined together.

The engage ring 1 made of plastic has its outer circumferential

edge formed with a plurality of resilient engage members 11, with an annular accommodating groove 12 formed between the resilient engage members 11 and the engage ring 1. Each resilient engage member 11 is formed with an outward arcuate protruding portion 13, and the engage  
5 ring 1 is bored with plural lateral insert holes 14. Besides, the steel ring 2 is urged in the accommodating groove 12 of the engage ring 1 to push outward the resilient engage members 11.

In assembling, as shown in Fig. 2, the engage ring 1 is first positioned in the recess of the flange 31 of a wheel rim 3 and then the  
10 steel ring 2 is forcefully fitted in the annular accommodating groove 12 of the engage ring 1 to force the resilient engage members 11 to expand outward and let the arcuate protruding portion 13 closely push against the inner side of the flange 31 and the engage ring 1 firmly fixed in the recess of the flange 31 of the wheel rim 3.

15 Subsequently, the wheel rim cover 4 is positioned on the outer side of the engage ring 1, letting the insert holes 41 of the wheel rim cover 4 respectively aligned to the insert holes 14 of the engage ring 1. Then, a screw 42 is screwed in the two insert holes 41, 14 to fix the wheel rim cover 4 on the wheel rim 3, as shown in Fig. 3. A second  
20 preferred embodiment of a wheel rim cover 5 is to have its inner side provided with plural fastening members 51 respectively having a hooking portion 52 formed at the outer end. The hooking portions 52 of the fastening members 51 of the wheel rim cover 5 firmly clasp the

inner side of the engage ring 1 and fix the wheel rim cover 5 on the wheel rim 3, as shown in Figs. 4 and 5.

A third preferred embodiment of the wheel rim cover engagement device in the present invention, as shown in Figs. 6 and 7,  
5 is to have the annular accommodating groove 12 of the engage ring 1 bored in the inner side with plural recessed grooves 15 respectively having a slope 151 on one side and a threaded hole 152 at the bottom. Plural push blocks 16 corresponding to the recessed grooves 15 of the engage ring 1 are respectively formed on one side with a slope 161  
10 matching with the slope 151 of the recessed groove 15 of the engage ring 1 and bored with a lateral slot 162. A bolt 17 is inserted through the slot 162 of the push block 16 and screwed in the threaded hole 152 of the recessed groove 15 of the engage ring 1, letting the slope 151 of the recessed groove 15 and the slope 161 of the push block 16 fit with each  
15 other. Thus, when the screw 17 is gradually screwed inward, the push block 16 will be moved outward increasingly and push the steel ring 2 in the annular accommodating groove 12 to expand outward together with the resilient engage members 11, which enable the engage ring 1 to be firmly secured in the recess of the flange 31 of the wheel rim 3.

20 In addition, the screw 17 can also be inserted through the insert hole 41 of the wheel rim cover 4 and the slot 162 of the push block 16 and then screwed in the threaded hole 152 of the recessed groove 15 of the engage ring 1 to fix the wheel rim cover 4 on the wheel rim 3, as

shown in Fig. 8.

A fourth preferred embodiment of a wheel rim cover engagement device in the present invention, as shown in Fig. 9, is to have the hooking portions 52 of the fastening members 51 of the wheel rim cover 5 clasp the engage ring 1, and a steel ring 521 is firmly fitted with the hooking portions 52 to force the hooking portions 52 to move outward and stably clasp the engage ring 1, equally able to stably fix the wheel rim cover 5 on the wheel rim 3.

As can be noted from the above description, this invention has the following advantages, compared with the conventional wheel rim cover engagement device.

1. Different from the conventional wheel rim cover engagement device in which the locking blocks have to be adjusted to proper positions prior to assembly of a wheel rim cover, the engage ring of the wheel rim cover engagement device in the present invention is an annular body, so a wheel rim cover can be installed on a wheel rim at any angle.

2. The engage ring of this invention can easily be positioned in the recess of the flange of a wheel rim by means of its resilient engage members, and a steel ring is urged in the annular accommodating groove of the engage ring to force the resilient engage members to expand outward and let their arcuate protruding portions closely push against the inner wall of the flange of the wheel rim, easy and quick in

assembling.

3. A wheel rim cover can be assembled on a wheel rim by means of its inner fastening members clasping the engage ring, needless to bore holes in a wheel rim cover and able to maintain its integral  
5 aesthetic appearance.

While the preferred embodiments of the invention have been described above, it will be recognized and understood that various modifications may be made therein and the appended claims are intended to cover all such modifications that may fall within the spirit  
10 and scope of the invention.

15

20